1888MNRAS..48..312T

Observations of Comet a, 1888. By John Tebbutt.

(*Communicated by A. A. Common.*)

Intelligence of the discovery of this comet at the Cape of Good Hope reached my observatory about noon on February 23, but the weather, which up to that time had been fine, suddenly became cloudy. I have observed the comet with the 8-inch equatorial and filar micrometer on every clear morning since that date. The nucleus is small and brilliant, and admits of precise observation. In consequence of the Moon's presence the comet is not a conspicuous object to the unassisted eye, its tail being only two or three degrees in length. By the mail now going out I forward you the following five positions. They depend on well-determined stars, but unfortunately in some instances the comparison intervals were large. The positions for the first two dates are corrected for refraction, but this correction, which cannot in any case exceed a second of arc, has not yet been applied to the differential results for the remaining dates.

	Windsor Mean Time.				Comet's Apparent R.A.			Comet's Apparent N.P.D.			No. of Comps.	Comp. Star.
1888.	d	h	m	s	h	m	s	°	′	″		
Feb.	27	16	35	34	20	2	10·75		...		17	1
	27	16	35	34	20	2	10·93	134	20	28·2	17	2
	28	16	34	30	20	6	53·64	132	52	32·8	4	3
March	2	17	9	9	20	20	13·76	128	21	26·4	3	4
	3	16	42	37	20	24	18·10	126	52	7·3	5	5
	3	16	42	37	20	24	17·92	126	52	6·9	5	6
	4	16	35	54	20	28	18·55	125	21	6·3	5	7

Mean Places of the Comparison Stars for 1888·0, *with the Reductions.*

Star.	R.A.			N.P.D.			Reductions.		Authority for Mean Place.
	h	m	s	°	′	″	s	″	
1	20	1	38·82	134	14	28·6	−2·00	−6·0	Stone, 10799.
2	20	2	18·07	134	13	12·6	−2·01	−6·0	Stone, 10803.
3	20	4	41·78	133	6	30·5	−1·95	−5·7	Stone, 10820.
4	20	27	37·71	128	28	18·5	−1·85	−3·6	Stone, 10965.
5	20	9	6·17	126	47	39·2	−1·69	−4·5	Stone, 10840.
6	20	14	25·88	126	57	42·9	−1·72	−4·2	Cordoba Zone, 22, 55.
7	20	16	33·76	125	29	15·3	−1·67	−3·8	Stone, 10897.

Windsor, N. S. Wales:
1888, *March* 6.

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On the Difference of Longitude between Mr. Tebbutt's Observatory, Windsor, New South Wales, and the Government Observatories at Sydney and Melbourne. By John Tebbutt.

On a single evening both in 1865 and 1878 the difference of longitude between my observatory and the Sydney Observatory was determined by telegraphic signals, the results being respectively $1^m\ 30^s{\cdot}04$ and $1^m\ 28^s{\cdot}83$. The time at Windsor for both these provisional determinations was derived from observations with a 2-inch transit instrument, and the preference was given to the latter result. As the longitude of Windsor was determined with great precision in 1884, by Dr. Auwers, from a long list of lunar occultations of stars, it was thought advisable in 1885 to redetermine the difference of longitude with all possible accuracy, inasmuch as more improved means existed here for the determination of the local time. It was therefore arranged to exchange telegraphic signals on three evenings in May 1885. As my observatory was not itself telegraphically connected with the Sydney Observatory, a mean-time chronometer had to be carried to the local telegraph office, distant about half a mile, for the transmission and reception of the signals. Signals were sent by hand to Syndey at every tenth second of the chronometer and recorded there on the transit-clock chronograph. It was arranged to receive seconds-signals from the Sydney clock, and to compare them with the chronometer by the method of coincidence of beats, but owing to the length and indefiniteness of the signals the attempt did not succeed. On the last evening signals were sent by hand from Sydney at every tenth second, being recorded there on the chronograph and compared at Windsor with the mean-time chronometer. In the autumn of last year it was suggested by Professor Harkness, of Washington, that the longitude from both Sydney and Melbourne should be determined with all possible care. During the winter several series of signals were accordingly exchanged between Windsor and the two observatories. The signals from Windsor were sent by hand from the local telegraph office at every tenth second by means of a mean-time chronometer, which was itself compared by coincidence of beats with the standard sidereal chronometer of my observatory both immediately before and after the exchange of signals, the latter timekeeper being regulated by the observation of a group of stars both shortly before and after the signals. The signals were recorded on the transit-clock chronograph at Sydney or Melbourne. The signals received at Windsor were sent at every second by the Sydney or Melbourne clock for the space of fifteen or twenty minutes with a break at the end of every minute, and compared with the mean-time chronometer by the method of coincidence of beats. On several occasions I also made trips to Sydney by railway in order to compare a mean-time chronometer with my standard

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